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QUERY 1. "Which is the most effective; a brake applied at the top or the side of a car wheel in motion?"

[No answer to this query has been received. It is clear however, we think, that, so far as the *retarding force* of the brake is concerned, it is immaterial at what point of the periphery of the wheel the brake is applied. For, the force necessary to produce a given amount of friction between the brake and the wheel depends wholly upon the distance from the center of the wheel to the point of application of the brake, and as that distance is the same whether the brake be applied at the top or side of the wheel, it is clear that, so far as regards the retarding force of the brake, its position is immaterial, provided it acts on the periphery of the wheel.]

QUERY 2. “Can the equation  $x^n + \sqrt[n]{x} = a$ , be solved?”

Answered by William Hoover, O. D. Oathout and Prof. Scchffer. Mr. Oathout represents the value of  $x$  by a continued fraction. Mr. Hoover and Prof. Scheffer say it can not, in general terms, because it produces an equation of a degree denoted by  $n^2$ .

Prof. Ludwick submits the following as a substitute for his published solution of problem 105, which is defective.

Let  $q$  = sum of combinations of  $m$  things taken odd numbers at a time,

$p =$  “ “ “ “ “ “ even “ “ “ “ .

Let  $q + p = m + A + B + C + D + \&c.$

then  $q - p = m - A + B - C + D - \&c.$

$\therefore (q + p) \div (q - p) = 1 + \text{rem.}, (a) \text{ suppose,}$

or  $q + p = q - p + aq - ap.$

$$\therefore q = p + 2p \div a. \quad \therefore q > p.$$

Hence the probability is in favor of drawing an odd number.

[Prof. A. B. Evans gave an elegant solution of this question and showed that the affirmation is not necessarily true unless the minimum number in a handful is 1 and the maximum number  $n$ , the whole number of shot in the bag.]

NOTE BY PROF. A. HALL. — Mr. Ivory was not the discoverer of the property referred to by Mr. Siverly in ANALYST, No. 3, p. 74. This was found by Jacobi, whose note is published in Poggendorf's Annalen, Vol. 33, p. 229.